

Fanglei first presented her update on the comparison of final polarization with different cold snake strengths. There is little effect from varying the α function in front of the cold snake. The real problem was that the snake rotation angles were wrong for 2.25T last time. After replacing the snake rotation angles, the 2.25T results is reasonable, sitting roughly in the middle of 2.5T and 2.1T curves.

Based on these simulations, the dominant polarization loss is from horizontal resonances instead of vertical resonances. Haixin concluded that the best solution is the combination of 10% cold snake and 6% warm snake. He continued to present the AGS pp run8 options. Here is the list:

1. Injection-on-the-fly. This is the main new scheme we are going to try for the coming run.
2. Reduce emittance at linac and LtB. A study will be carried out for the LtB part.
3. Reducing horizontal resonance strength by harmonic 17 correctors. Kevin stated that this requires the horizontal tune very close to half integer, so it is probably very hard. Another round simulation will be done.
4. Raise Booster extraction energy. It can help to reduce the lattice distortion due the stronger snakes at lower energies, so the vertical tune can be put into the spin tune gap. Ideally, we would like to raise energy from $G\gamma = 4.5$ to 7.5 (difference of multiple of 3 unit of $G\gamma$), but the Booster quads definitely can't reach the required field. Raising $G\gamma$ by one unit to 5.5 is also questionable due to the required quad strength and worse spin matching.
5. Lower AGS extraction energy below $36+\nu$. This requires lowering γ_t by γ_t quads. It also requires spin rotator to be turned on and off at injection so that spin can be matched between the two accelerators. Waldo is going to calculate the required rotator current. Dejan pointed out that using 60 degree phase advance lattice, one can lower γ_t easily. The disadvantage is that the whole RHIC ramp has to be redeveloped. Mei also voiced her concern that the dynamic aperture is not explored for this lattice. On the other hand, the new working point will reduce phase advance naturally, though it is going to be applied only to one ring.
6. Extraction-on-the-fly. Mei already contacted RF group about this scheme. It is hard but not impossible.

Haixin